

## Lead-free toughened enameled glass

## Meeting Your Aesthetics Needs

### Description

Noval Lead-free toughened enameled glass is an opaque coloured glass, produced by uniformly enameling one side of the glass. The new enamels used do not contain any dangerous heavy metals (in particular: lead, cadmium, mercury or chromium VI). The enamel is fired at a very high temperature, in order to fuse permanently with the glass surface, giving the product exceptional durability.

Noval Lead-free toughened enameled glass is a toughened safety glass manufactured in accordance with standard BS EN 12150.

For certain applications it can be heat-strengthened in accordance with standard BS EN 1863.



- <1000 ppm in the content of the paint

### Applications

- **External façade cladding**

Used in insulated spandrels or cladding panels in non-vision areas for an aesthetically clean appearance. Uniform facades or contrasting features can be created, with the added reflective quality of glass.

- **Internal cladding**

Noval Lead-free toughened enameled glass provides exceptional resistance to humidity and is often used to clad internal wall areas, such as laboratories, where hygiene and durability are important.

### Advantages

- **More environmentally friendly**

The enamel is free from lead and other dangerous metals making it more environmentally friendly and totally recyclable. During manufacture, the almost total absence of pollutants protects nature and health.

- **Coloured facades**

Noval Lead-free toughened enameled glass is available in a wide range of colours. Additional decorative effects can be obtained by enameling different base glasses and/or designing specific colours.

- **Exceptional durability and safety**

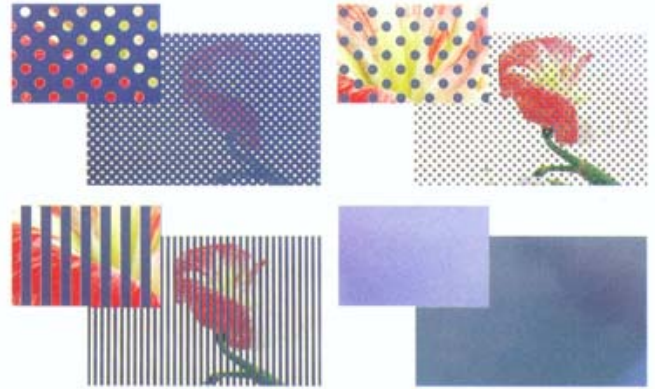
Noval Lead-free toughened enameled glass is a toughened safety glass with the mechanical properties and durability inherent to clear toughened glass. In both facades and interior applications, the colours remain totally stable over time.

- **Simple installation**

Noval Lead-free toughened enameled glass is as easy to install as ordinary toughened glass.

## Range

- Noval Lead-free toughened enameled glass: for uniformly colored spandrel panels, combined with the natural radiance of glass
- Noval Lead-free toughened enameled extra-low iron glass: for true pure white, by enamelled extra clear glass
- Noval Lead-free toughened enameled patterned glass coloured and textured glass, using Noval patterned glass and certain pattern form the decorative range



### Standard colour range

Noval Lead-free toughened enameled glass available in a range of 25 standard colours. In addition to the standard range of colours, bespoke colours and colour-matching services are available, enabling most colours to be replicated.

### Manufacturing sizes

Thickness (mm)	6,8,10
Maximum dimensions (mm)	3600 x2080

### Manufacturing tolerances

Deflection tolerance	3mm /3m
Tolerance on sizes	+0.3mm
Max length/width ratio	1 /10
Minimum dimensions (mm)	500x300

Manufacturing tolerance: refer to standard BS EN12150

Larger dimensions are available.

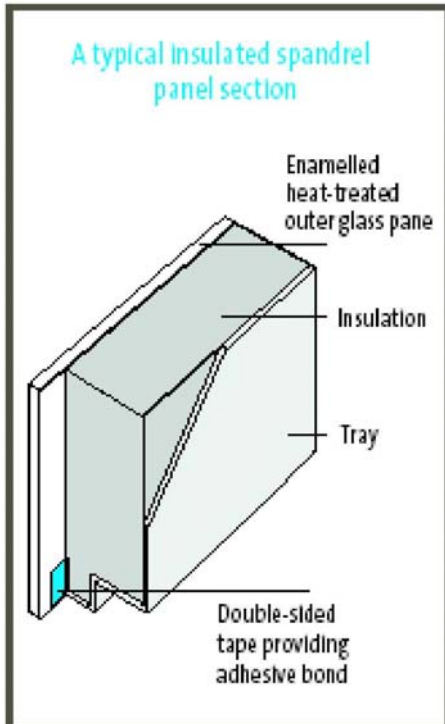
### Please note

- The thickness of the glass can affect the final colour of the product.
- For uniformly coloured surfaces on facades, a single thickness should be used throughout a project.
- A colour difference of  $E = 1.5$  (C.I.E  $a^*b^*$ ) measured on the surface of the glass is acceptable between 2 panes with the same colour enamel.

Processed product variations

**Insulated Spandrel Panels**

Insulation can be added to both single and double-glazed spandrel panels to improve thermal performance. The insulation is applied as foil backed foam or as mineral fibre in an aluminium tray bonded to the rear, painted surface of the single glass or double-glazed unit. Both the tray and spandrel are retained within the glazing rebate. In the case of foil backed foam, an aluminium channel is bonded to the glass perimeter to form a standard 24mm glazing width. Both the glass and aluminium channel are retained in the glazing rebate.



Two type of insulation are available as standard:

- CFC-free foam
- Mineral fibre

The standard thickness of insulation and their minimum corresponding centre-pane U-values are as follows:

CFC-free foam	35 mm	50 mm	75 mm
Mineral fibre	50 mm	75 mm	10 mm
Centre pane U-value (w/m <sup>2</sup> k)	0.30	0.44	0.30

These values apply to both single and double-glazed spandrel panels. For special applications, it may be possible to design insulation to meet the requirements of the project. Due to thermal conduction through aluminium trays, the overall U-value may be higher than the centre pane value quoted.

**Internal finishes to insulated spandrel panels**

Standard insulated spandrels with no treatment to the rear surface of the tray (mill-finish) are for use only where the internal surface will not be visible

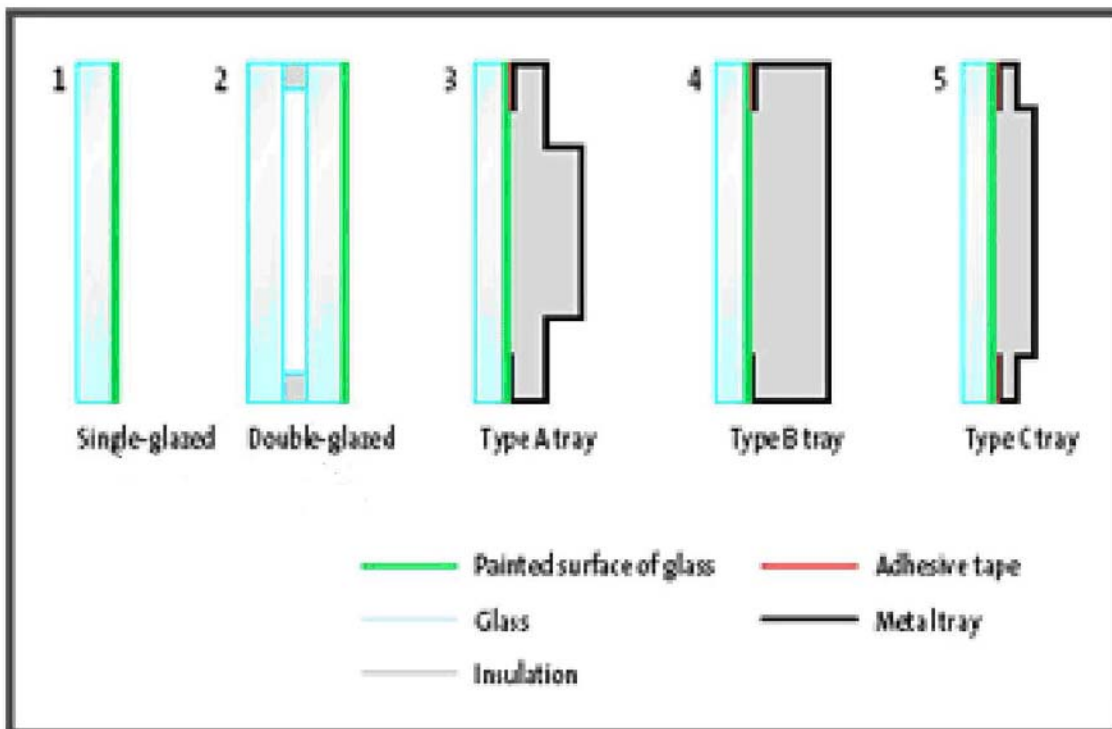
Where the rear surface of the tray is to be visible and where appearance is not of major importance, various powder-coated finishes are available.

**Tray types and edge details**

Various tray type may be specified for use in single or double-glazed spandrel panels.

All types are bonded to the painted surface of Noval Lead-free toughened enameled glass

Processed product variations.../...



**Double-glazed units**

National regulations permitting, Noval Lead-free toughened enameled glass can be incorporated in double-glazed units for façade applications. The enamel coating must be on face 4.

This type of double glazing must be designed specifically for this particular application (depth of seal, loading, width of cavity etc).

**Laminated glass**

When required in laminated form, the enamelled face must be located on the outside of the assembly.

**Curved glass**

Please contact our technical department.

**Edgeworking, notches, holes**

See Noval safety glass.

## Installation Guidelines

Noval Lead-free toughened enameled glass must always be installed in accordance with current national regulations.

- Mechanical fixings: Noval Lead-free toughened enameled glass can be channel glazed, adhesively glazed or screw-fixed. Glass-to-glass and glass-to-metal contact must be avoided. There must be a minimum clearance of 3 mm between two adjacent panes.
- Adhesively glazed : Noval Lead-free toughened enameled glass can also be installed in exterior structural sealant glazing, in ventilated, unventilated or insulated spandrel panels (filling element).



For adhesive glazing, ensure that the sealant is not visible. For certain applications, high opacity enamelling is available on request

To check the compatibility of the adhesive with the enamel

In the interest of preserving its original appearance, Noval Lead-free toughened enameled glass should not be installed with the enameled face towards the outside.

In facades, Heat-Soak test treatment is always recommended, in accordance with standard BS EN 14179.

This treatment is not necessary if the heat-strengthened version of Noval Lead-free toughened enameled glass is used.

Noval Lead-free toughened enameled glass is designed for use with a back-up wall and is not intended for viewing the enameled surface from an internal aspect.

With pale colours it is advisable to place a uniformly light colored backing behind the glass.

### ***Maintenance***

To maintain its appearance, Noval Lead-free toughened enameled glass must be regularly cleaned with neutral products that are free of harsh abrasive materials.

### ***Standards and Regulations***

Noval Lead-free toughened enameled glass is a toughened safety glass conforming to standard BS EN 12150.

It can also be heat-strengthened, in accordance with standard BS EN 1863. Noval Lead-free toughened enameled glass will receive marking when it is officially in force.

**For more information, pls contact Noval Glass:**

**Tel: 0086-532-8275-1111 Fax: 0086-532-8275-5222**

**Website: [www.novalglass.com](http://www.novalglass.com) or Contact: [service@novalglass.com](mailto:service@novalglass.com)**